

## Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004-2005. For more information, please visit [www.landfire.gov](http://www.landfire.gov). Please direct questions to [helpdesk@landfire.gov](mailto:helpdesk@landfire.gov).

### Potential Natural Vegetation Group (PNVG):

R8BSOB

Bluestem Oak Barrens

### General Information

**Contributors** (additional contributors may be listed under "Model Evolution and Comments")

**Modelers**

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**Reviewers**

**Vegetation Type**

Grassland

**Dominant Species\***

SCSC

QUST

JUVIV

SONU2

**General Model Sources**

Literature

Local Data

Expert Estimate

**LANDFIRE Mapping Zones**

47

48

**Rapid Assessment Model Zones**

California

Pacific Northwest

Great Basin

South Central

Great Lakes

Southeast

Northeast

S. Appalachians

Northern Plains

Southwest

N-Cent.Rockies

### Geographic Range

Western Indiana, Jackson Purchase and Pennyroyal Karst areas of western Kentucky (and adjacent Tennessee), middle Tennessee (Eastern and Western Highland Rim and Nashville Basin).

### Biophysical Site Description

Open grasslands and woodland mosaic with scattered successional and mature forest patches. These are in flat areas which may have been prone to large wildfires, most of which were anthropogenic in origin. This model describes those areas of the prairie-forest interface where isolated oak-hickory forests occur in a prairie matrix.

### Vegetation Description

Grasslands with areas of open woodlands, and successional areas of woody regeneration. Vegetative cover was determined mainly by fire frequency under a climatic regime capable of supporting any of these vegetation types. This model includes these NatureServe ecological systems: CES202.352, CES202.353, CES202.354, CES202.355, and CES203.479.

### Disturbance Description

Disturbance regime in model is based on fire, mostly from anthropogenic burning by native Americans. Bison also were an agent of grazing disturbance, but were not specifically included in this model. The Fire Regime Group is either I (based on FRI) or III (based upon severity), but we will call it FRG I.

### Adjacency or Identification Concerns

Included within areas of this model in the Nashville Basin are limestone cedar glades, the perennial grasslands of which can fall under this model. The rock outcrops are excluded due to lack of fuels.

\*Dominant and Indicator Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

## Scale Description

Sources of Scale Data  Literature  Local Data  Expert Estimate

5 - 50,000 acres, ave 3,000 acres of fire area

## Issues/Problems

There may have been more Native American burning, which would have led to more acres being in classes A and C.

## Model Evolution and Comments

Quality control resulted in the following changes:

- Removed TSD in Class C and Class D Surface Fire (rule violation).
- All other changes were made to try and mimic original results based upon request from original modeler. No peer review of this model, but the modeler was informed of the changes made.
- Removed AltSuccession from B (TSD 30 yrs) to E because Succession went to E. -Changed Class B and C to 30 time steps, and changed beginning Ages of E and D to reflect that change.
- Changed Class C Alt Succession to B to TSD 12 (from TSD 15) to move more pixels into B.
- Added MF in Class C to Class C with probability of 0.02 because MF FRI was too high.

## Succession Classes

Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook ([www.frcc.gov](http://www.frcc.gov)).

### Class A 40%

Early1 All Structures

#### Description

Open grasslands maintained by fire and to a lesser extent native grazing. These grasslands can result from the burning of wooded classes where the trees are killed. Early post-fire prairies dominated by perennial grasses.

#### Indicator Species\* and Canopy Position

SCSC Lower  
SONU2 Lower

#### Upper Layer Lifeform

- Herbaceous  
 Shrub  
 Tree

Fuel Model 1

#### Structure Data (for upper layer lifeform)

	Min	Max
Cover	0%	10%
Height	Herb Short <0.5m	Herb Tall > 1m
Tree Size Class	Sapling >4.5ft; <5"DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

### Class B 15%

Mid1 Closed

#### Description

Early successional, shrub or tree thickets, with young trees. There is also herbaceous groundcover but less than in class A or C. Unburned sapling to pole-sized hardwoods with declining herbaceous understory.

#### Indicator Species\* and Canopy Position

JUVIV Middle  
QUST Mid-Upper  
SCSC Lower

#### Upper Layer Lifeform

- Herbaceous  
 Shrub  
 Tree

Fuel Model 9

#### Structure Data (for upper layer lifeform)

	Min	Max
Cover	50%	100%
Height	Tree Regen <5m	Tree Medium 10-24m
Tree Size Class	Pole 5-9" DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

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**Class C 30%**

Mid1 Open

**Description**

Savanna with scattered trees, becoming uneven aged as the stand ages (i.e. time since trees began regeneration). Grassy groundcover of mostly little bluestem and Indian grass, which carries fairly frequent fire, every 5 years or so. Many trees are killed by fire, keeping this a semi- open savanna (class C) and keeping patches in open grassland (class A).

**Indicator Species\* and Canopy Position**

SCSC Lower  
QUST Upper  
SONU2 Lower  
JUVIV Middle

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** 2

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	10 %	50 %
Height	Tree Regen <5m	Tree Medium 10-24m
Tree Size Class	Pole 5-9" DBH	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

SCSC - Herbaceous 30-90% cover max height  
Herb Tall > 1m

**Class D 5%**

Late1 Open

**Description**

Mid- to late savannah/woodland, with widely varying amounts of understory perennial grasses/forbs and old scattered trees.

**Indicator Species\* and Canopy Position**

SCSC Lower  
JUVIV Mid-Upper  
QUST Upper

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** 2

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	10 %	50 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Medium 9-21"DBH	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

SCSC - Herbaceous 30-90% cover max height  
Herb Tall > 1m

**Class E 10%**

Late1 Closed

**Description**

Mid- to late successional woodlands, often with senescent herbaceous understory. This is infrequently burned and trees are dense enough that the herbaceous groundcover has declined and is discontinuous. Replacement fire can convert this to open grassland (class A).

**Indicator Species\* and Canopy Position**

QUST Upper  
JUVIV Mid-Upper

**Upper Layer Lifeform**

- Herbaceous
- Shrub
- Tree

**Fuel Model** 9

**Structure Data (for upper layer lifeform)**

	Min	Max
Cover	50 %	100 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Medium 9-21"DBH	

Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

**Disturbances**

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**Non-Fire Disturbances Modeled**

- Insects/Disease
- Wind/Weather/Stress
- Native Grazing
- Competition
- Other:
- Other:

**Fire Regime Group:      1**

- I: 0-35 year frequency, low and mixed severity
- II: 0-35 year frequency, replacement severity
- III: 35-200 year frequency, low and mixed severity
- IV: 35-200 year frequency, replacement severity
- V: 200+ year frequency, replacement severity

**Historical Fire Size (acres)**

Avg: 3000  
 Min: 5  
 Max: 50000

**Fire Intervals (FI):**

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

**Sources of Fire Regime Data**

- Literature
- Local Data
- Expert Estimate

	<i>Avg FI</i>	<i>Min FI</i>	<i>Max FI</i>	<i>Probability</i>	<i>Percent of All Fires</i>
<i>Replacement</i>	15			0.06667	46
<i>Mixed</i>	69			0.01449	10
<i>Surface</i>	16			0.0625	44
<i>All Fires</i>	7			0.14366	

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